

## CLAIMS:

1. A voltage regulator comprising a series-regulating element (T1) between an input (I) and an output (O) of the voltage regulator, and a differential input error amplifier (1) having a first output (O1) coupled to a control input of the series-regulating element (T1), characterized in that the error amplifier (1) further comprises a second output (O2) coupled to  
5 the output (O) via a high-pass filter (5, R1, C1).

2. A voltage regulator as claimed in Claim 1, wherein a first low-pass filter (3) is coupled between the input (I) of the voltage regulator and an input terminal of the series  
10 regulating element (T1).

3. A voltage regulator as claimed in Claim 2, wherein the first low-pass filter (3) comprises a first plurality of resistors (R2a, R2b, R2c) connected in series, the first plurality of resistors (R2a, R2b, R2c) being coupled to a first plurality of respective switches (T2a, T2b, T2c) for modifying a time constant of the first low-pass filter (3).  
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4. A voltage regulator as claimed in Claim 1, 2 or 3, wherein a first input (+) of the error amplifier (1) is coupled to the input (I) of the voltage regulator through a second low-pass filter (2).

20 5. A voltage regulator as claimed in Claim 4, wherein the second low-pass filter (2) comprises a series coupling of a voltage source (Vdrop), a resistor (R3) and a capacitor (C3).

6. A voltage regulator as claimed in any of the preceding claims, wherein the  
25 series-regulating element (T1) comprises a plurality of series-regulating elements (T1a, T1b, T1c) coupled to a respective second plurality of selectable resistors (R11a, R12a, R11b, R12b, R11c, R12c).

7. A voltage regulator as claimed in claim 6, wherein the second plurality of selectable resistors (R11a, R12a, R11b, R12b, R11c, R12c) are field effect transistors coupled in pairs, each pair comprising a series connection of a main current channels of two transistors coupled between the input (I) of the voltage regulator and the first output (O1) of the error amplifier (1).

8. An optical detector/amplifier (200) comprising a voltage regulator as claimed in any of the preceding claims for supplying one ore more photo diodes (201) coupled to a variable gain amplifier (202).

9. An optical detector/amplifier (200) as claimed in claim 8, wherein the variable gain amplifier comprises a plurality of cascaded-connected controllable amplifiers.